

**L-0001**  
**BASIC COMMUNICATIONS PROCEDURES FOR ES OPERATIONS**

**CONDITIONS**

You are a member of the CAP mission staff performing a task in which the use of a radio is necessary.

**OBJECTIVES**

Properly operate a CAP radio.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. From time to time, duties may require the use of a CAP radio. This is not a difficult task, but does require some knowledge of operating procedures and equipment.
2. You should be able to demonstrate the following skills:
  - a. Demonstrate the proper method to contact another station.
  - b. Demonstrate knowledge of call signs.
  - c. Demonstrate knowledge of basic prowords.
  - d. Demonstrate ability to operate basic radio equipment.
  - e. Demonstrate knowledge of prohibited practices.
  - f. Demonstrate knowledge of National communications policies.
  - g. Demonstrate knowledge of local operating practices.
  - h. Demonstrate knowledge of region, wing, and local policies.

**Additional Information**

Additional information is available in CAPR 100-1 Vol. 1 and the "Radiotelephone Procedures Guide."

**Evaluation Preparation**

**Setup:** The student is provided with a basic radio (volume, squelch, channel controls) and asked to communicate with another station. At least one radio will be needed for this exercise. The pro-words "roger," "over," "out," affirmative," should be used. The exchange should go through several transmissions with questions and answers. Prohibitive practices, such as "chit chat," should be used or discussed.

**Brief Student:** The student is at mission base and has been assigned the task of reporting when the director of the local office of emergency management arrives for his/her tour of the facility.

### Evaluation:

<u>Performance measures</u>	<u>Results</u>	
1. Listen before transmitting	P	F
2. Demonstrate calling procedures including call signs	P	F
3. Demonstrate use/understanding of basic prowords	P	F
4. Demonstrate understanding of radio equipment including finding local repeater/simplex	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0002**  
**PERFORM RADIO OPERATING PROCEDURES**

**CONDITIONS**

You are a mission radio operator at a search/DR base.

**OBJECTIVE**

Properly operate a mission base radio system.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. A Mission Radio Operator is required to maintain communications with all mission assets (aircraft, ground teams, flight line and forward bases). This allows for sending new instructions, reporting mission information and as a safety measure for keeping track of people in the field.

2. You should be able to demonstrate the following skills:

- a. Demonstrate the proper method to contact another station.
- b. Demonstrate knowledge of the International Phonetic Alphabet.
- c. Demonstrate knowledge of CAP Prowords.
- d. Demonstrate knowledge of international urgency signals.
- e. Demonstrate the ability to maintain a communications status board.
- f. Demonstrate a familiarity with standard equipment and local communications operations.
- g. Demonstrate the proper use of standard radio equipment.
  - 1) Set volume and squelch levels appropriately
  - 2) Demonstrate proper use of microphone

**Additional Information**

Additional information on this topic can be found in The Radiotelephone Procedures Guide.

## Evaluation Preparation

**Setup:** Provide the student with a message to reassign an aircraft to another grid, a status board, a radio, paper and pencil/pen.

**Brief Student:** Ask the student how they would contact an aircraft flying a sortie. Tell the student that he needs to transmit the change of grid assignment to the aircraft. Transmit an urgency signal to the student and ask them to identify the meaning of the signal and what action that they should take.

### Evaluation:

<u>Performance measures</u>	<u>Results</u>	
1. Demonstrate setting volume and squelch levels for proper function	P	F
2. Demonstrate proper microphone technique	P	F
3. Demonstrate listening before transmitting	P	F
4. Properly call and acknowledge aircraft	P	F
5. Send change of grid assignment, using proper phonetics and prowords	P	F
6. Correctly interpret urgency signal and take appropriate action	P	F
7. Update mission communications status boards	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0003**  
**EMPLOY APPROPRIATE RADIO FREQUENCIES AND REPEATERS**

**CONDITIONS**

You are the radio operator, and have been told to contact another station. You must choose what frequency to use.

**OBJECTIVE**

Within 2 minutes, identify the appropriate frequencies and channels used for operations.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. CAP Teams use a number of VHF-FM frequencies to communicate with mission base, ground teams, and aircraft.
2. Frequency assignments are usually given by the communications unit leader based on the following.
  - a. Simplex Frequencies (VHF-FM): Short range communications where units are operating on the same transmit and receive frequency
  - b. Duplex Frequencies. Longer range communications are accomplished through the use of a repeater. All repeaters are accessed by transmitting a subaudible tone through the radio. The 100.0 Hz tone will activate any CAP repeater, but is used only in emergencies and to request the proper tone frequency for the repeater in use. Other tones are programmed into the radio as required. The communications unit leader will brief teams on what frequency and tones to use to access local repeaters.
  - c. VHF-AM (Airband) SAR Frequencies: These are dedicated frequencies authorized for training and actual missions that can be accessed by any aircraft.
  - d. National HF Frequencies: These are frequencies coordinated by National Headquarters. Some teams may be deployed with HF radios on these frequencies during disasters to serve as relay points out of affected areas.
  - e. Region HF Frequencies: These are frequencies established for HF operations within a region. Teams may also be deployed and operate on these frequencies to transmit greater distances than traditional VHF-FM assets used by ground teams.
  - f. Other frequencies are used to communicate with police, Coast Guard, and other SAR agencies. Again, the communications unit leader will brief on the use of these frequencies.

## Additional Information

Additional information on frequencies used in CAP and repeater locations can be found in CAPR 100-1 Vol. 1, chapters 7, 9, & 10, and The Communications Directory. Wing Communications Operations and Training plans will also contain important information for your area.

## Evaluation Preparation

**Setup:** Prepare a list of the five frequency groups listed above for your area of operation with assignments in each group. Give the list to the trainee. The student may use any item from his field gear, including this book or a “cheat sheet”.

**Brief Team Leader:** Tell the student to identify each frequency and its use, within 2 minutes total time.

## Evaluation:

<u>Performance measures</u>	<u>Results</u>	
The individual identifies:		
1. Identifies the primary simplex frequency and its use.	P	F
2. Identifies the alternate simplex frequency and its use.	P	F
3. Identifies the primary duplex frequency pair and its use.	P	F
4. Identifies the alternate duplex frequency pair and its use.	P	F
5. Identifies the primary HF SSB frequency for the region	P	F
6. Identifies the alternate HF-SSB frequency for the region	P	F
7. Completes all steps within 2 minutes	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0004**  
**MESSAGE HANDLING PROCEDURES**

**CONDITIONS**

You are a mission radio operator at a SAR/DR base.

**OBJECTIVE**

Demonstrate the proper sending, receiving and distribution of formal and informal message traffic.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. A Mission Radio Operator is required to transmit, receive and distribute both formal and informal mission related messages. Messages must be processed and delivered in an accurate and timely manner.
2. You should be able to demonstrate the following skills:
  - a. Demonstrate how to send formal and informal messages
  - b. Explain the significance of the message precedence
  - c. Demonstrate how to fill out incoming message forms
  - d. Demonstrate filling in a mission radio log
  - e. Receive and route a formal message

**Additional Training**

Additional information on this topic can be found in the Radiotelephone Procedures Guide.

**Evaluation Preparation**

**Setup:** Provide the student with a formal mission continuation message and an informal message for a ground team to contact the Ground Branch Director by telephone, message forms, a radio, paper and pencil/pen.

**Brief Student:** Have the student send you the formal and informal messages. Ask for a fill on the formal message. Send a formal message to the student. Send an informal message to the student.

**Evaluation:**

<u>Performance measures</u>	<u>Results</u>	
1. Properly send messages, using appropriate phonetics and prowords	P	F
2. Properly handle a request for a fill on the formal message	P	F
3. Properly fill out and distribute a message form	P	F
4. Properly and completely fill out mission radio log	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0005**  
**CHOOSE A GOOD COMMUNICATIONS SITE**

**CONDITIONS**

Given a scenario in which a team is deployed from base to a remote location.

**OBJECTIVE**

Determine a good location to contact base by radio.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. When on a sortie, the ground search and rescue team is required to maintain communications with mission base. In order to contact mission base, the team must find a good geographical location that will provide solid radio communications.
2. The following factors should be considered in choosing a good communications site:
  - a. High ground. The higher you are, the farther your signal can travel because there are fewer objects in the way.
  - b. Line of Sight. You want a clear path through the air between you and the station you are trying to communicate with. Just finding a high spot will not necessarily help if there is higher ground left between you and the receiving station. Artificial structures, especially tall buildings and metal sheds/towers, can block a signal easily.
  - c. Accessibility. If you are choosing a communications site based on a map study, ensure that you can actually get to it. The best communications site in the world cannot help you if you cannot drive/walk to it easily or if it is behind a locked gate.
  - b. Radio Interference. Some artificial objects produce radio interference that can interfere with your radio's ability to receive. Look for and avoid radio interference generators when choosing a communications site. These include:
    - 1) High power lines
    - 2) Transformers
    - 3) Underground cables



### Additional Information

Additional information on choosing a good communications site can be found in publications of the American Radio Relay League (ARRL), Newington, CT. Information on ARRL can be found at their web site: <http://www.arrl.org>.

### Evaluation Preparation

**Setup:** None.

**Brief Team Leader:** Ask the team leader to name at least three factors in choosing a good communications site, and two sources of radio interference.

### Evaluation:

<u>Performance measures</u>	<u>Results</u>	
1. Identifies the three of the four communications site factors	P	F
2. Identifies two radio interference sources	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0006**  
**TAKE STEPS TO REGAIN COMMUNICATIONS**

**CONDITIONS**

Given a radio and a situation where you must contact another unit or base by radio but cannot reach them.

**OBJECTIVE**

Define correct procedures for re-establishing a radio communications link.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. Ground Search and Rescue Team communications with base and other teams are primarily based on using VHF-FM radio communications. Due to the frequencies used, these communications are limited to line-of-sight access. There must exist an unobstructed line between the transmitting and receiving station. When teams are deployed to the field, they will frequently operate on the 'wrong' side of the mountain or in low areas where the line-of-sight to base or other stations is blocked.

2. The following actions can be taken to re-establish FM radio communications:

- a. Check the radio. Ensure battery is good (battery meter or listen for static with squelch off), and that the antenna and hand mike are connected and operational. Try another radio or battery if available.
- b. Move to higher ground. This places your antenna at a higher location and increases the chances of maintaining line-of-sight to the receiving station.
- c. Use duplex mode. Repeaters are placed in several locations around the state. If you cannot reach base directly, it might be possible to contact them through a radio repeater.
- d. Request ground or air relay. If another ground station or aircraft is in a location where it has contact with you and the receiving station, they can relay your message. Only use an aircraft relay if absolutely necessary.
- e. If transmitting from a vehicle, move the vehicle to another location. There are radio 'dead spots' near power lines and other areas. Simply moving the vehicle a few meters may correct the situation.
- f. If none of these actions work, find a telephone and use it to contact base.

**Additional Information**

Additional information on regaining communications can be found in L-0005 (Choose a Good Communications Site) and your radio's trouble shooting guide.

## Evaluation Preparation

**Setup:** None.

**Brief Team Leader:** Brief the team leader that he is the radio operator on a team and has been told to contact mission base, but cannot reach them. Ask him what steps he would take to regain communications.

## Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Demonstrate troubleshooting the radio	P	F
2. Describes three of the remaining five steps of re-establishing communications with mission base.	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0007**  
**CONDUCT SCHEDULED RADIO CHECKS**

**CONDITIONS**

You are the radio operator for your team in the field. Your team has been told to contact mission base at scheduled times with current situational information.

**OBJECTIVE**

Conduct scheduled radio checks on time and with proper information.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. When on a sortie, the ground search and rescue team is required to maintain communications with mission base in some manner. This allows for receiving new instructions, reporting mission information, and as a safety measure for keeping track of people in the field.

2. Make scheduled radio checks:

- a. At the times briefed by the ground operations director.
- b. When completing certain sortie actions identified in advance by the ground branch director.
- c. Departure and returning to mission base.
- d. Entering and leaving search areas.
- e. Any extended stop, such as a meal break.

3. Before making the radio check:

- a. Stop and determine the team's location and status. Get this done BEFORE the time the check is due.
- b. Contact mission base or radio relay to transmit his check-in.

4. When making a scheduled radio check, transmit:

- a. The time of the radio check
- b. The team's location
- c. The teams status or actions in progress.
- d. Request confirmation and read-back of message from base.

e. For example "FREESTATE TWO FIVE THIS IS FREESTATE TWO ONE SEVEN. SCHEDULED RADIO CHECK FOR FOURTEEN HUNDRED HOURS. TEAM IS LOCATED AT: GRID

RIGHT ONE POINT THREE, UP TWO POINT TWO. CONTINUING SEARCH PATTERN, NOTHING ELSE TO REPORT. PLEASE READ BACK THIS MESSAGE.

### **Additional Information**

Additional information is available in the "Radiotelephone Procedures Guide."

### **Evaluation Preparation**

**Setup:** On a sheet of paper, write the location of the ground team, what they have been doing since the last radio check, and what they are currently doing. Don't let the team member see this paper - if he asks you questions about the team's status or locations, read him the information off the paper. Provide the team member with a radio, paper and a pencil. Ensure he has a watch.

**Brief Team Leader:** Tell the team leader that he is now his team's radio operator. Ask the team member when he would make check-ins with mission base. After he has answered, tell him that he must make scheduled radio check at a given time (pick a time five minutes from the briefing). Tell him that you will answer any questions you have about his ground team's status.

### **Evaluation:**

<u>Performance measures</u>	<u>Results</u>	
1. Identifies the four times a team makes radio checks	P	F
2. Determines the team's location and status before checking in.	P	F
3. Transmits radio check-in correctly, including time, location, and team actions.	P	F
4. Requests/receives confirmation	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0008**  
**SEND A POSITION REPORT**

**CONDITIONS**

Given a known coordinate position, a map, and a radio in the field.

**OBJECTIVE**

Transmit your known position to a distant station correctly.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. Determine your own position through terrain association, GPS, polar plot, or resection. Define this position in latitude/longitude, overlay grid coordinates, or polar plot.
2. Contact distant radio station using proper radiotelephone procedures.
3. Transmit location clearly using latitude/longitude, overlay grid coordinates, or polar plot
4. Have distant radio station read back location for confirmation.
5. End transmission according to radiotelephone procedures.

**Additional Information**

Additional information may be found in the "Radiotelephone Procedures Guide."

**Evaluation Preparation**

**Setup:** Provide the team member a radio set to the correct frequency, a map marked with his known location, a pencil and paper. Place another radio and operator at some distance away.

**Brief Team Leader:** Inform the team leader that he is located at the marked point on the map. Give him his callsign and the callsign of the remote station, and then tell him to send a position report to the remote station.

**Evaluation**

<u>Performance measures</u>	<u>Results</u>	
1. Contacts the other station appropriately	P	F
2. Transmits his location correctly	P	F
3. Requests read back for confirmation	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**L-0009**  
**REPORT A CLUE OR FIND**

**CONDITIONS**

The team you are supporting has just found a clue that might be related to the search target.

**OBJECTIVE**

Correctly transmit a report to mission base containing all required information.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. When a clue is found, mission base needs to know immediately in order to adjust the search accordingly. You should report the clue quickly and accurately, and suggest to mission base if any personnel (such as the police) should be called out to look at the clue. Also remember that eavesdroppers might be listening in. Be careful how you phrase things to avoid causing undue excitement or panic.

2. To report a clue or find:

- a. Determine the location of the clue using one of the approved methods (grid, polar plot or lat/long - the CAP grid system is not precise enough for clue reporting)
- b. Determine several conditions of the clue, survivor or victim, and resource needed.
- c. Make sure you have searched the immediate area for other clues.
- d. Prepare the Report using the format below.
- e. Establish good communications with mission base or with a relay station.
- f. Send the Report in the following format:

NOTE: "TX"=You "RX"=Mission Base

TX: "I have a clue report for the mission coordinator or ground operations officer. Advise when you are ready to copy, OVER."

RX: "Roger, proceed, OVER."

TX: "Location: (Sends location in grid coordinates, polar plot, etc.), OVER."

RX: "Roger, continue, OVER."

TX: "Found (Sends clue description.)"

RX: "Roger, continue, OVER."

TX: "(Send status of clue - marked, bagged, etc.)"

RX: "Roger, what resources do you need, if any? OVER"

TX: "(Tell the mission radio operator what, if anything)"

(For resources needed:

- 1: No resources needed. Rescue can be accomplished with forces on hand.
- 2: Advanced Life Support required.
- 3: Fire Suppression Personnel required.
- 4: Medical Examiner or Coroner required
- 5: Law Enforcement Personnel required.
- 6: Hazardous Materials Team required.
- 7: Additional Ground Teams required, OVER

RX: "Roger, I'll pass that on immediately, OVER"

TX: "Standing by for further instructions."

g. Avoid conjecture. Don't make guesses over the radio as to what the clue means. If mission base wants your analysis, they will request it.

h. Avoid inflammatory or unclear descriptions that could unduly excite eavesdroppers. For example do not say, "We've found a pile of bloody clothing." Instead, say, "Found one pair of jeans, size 12 and one white T-shirt. Both are dirty and have possible bloodstains."

### **Evaluation Preparation**

**Setup:** Prepare a description of a clue/find and write it down. Ensure you include the location of the clue using one of the objective techniques, the description and current status of the clue, and additional resources the team needs. Provide the individual with a copy of the clue report format above.

**Brief:** Advise him that his team has just found a clue. Tell him you will play the role of mission base and the team leader. Give him the written clue and tell him to read it and ask any questions. When he is ready, advise him to prepare a clue report and send it to you using the format of this task, pretending he is using a radio, within 5 minutes. He can refer to the task guide.



## Evaluation

<u>Performance measures</u>	<u>Results</u>	
1. Correctly contacts mission base and tells them he has a clue report, and that they should prepare to copy.	P	F
2. Correctly transmits the location of the target using any of the authorized methods (grid, lat/long, etc.)	P	F
3. Correctly transmits a description of the clue.	P	F
4. Correctly transmits the current status of the clue.	P	F
5. Correctly sends the item numbers for all resources needed.	P	F
6. Transmits that he is standing by for further instructions.	P	F
7. Has mission base read back the message. Makes corrections as needed.	P	F
8. Uses the correct format and verbiage.	P	F
9. Does not use imprecise or unnecessarily graphic terms.	P	F
10. Avoids conjecture.	P	F
11. Completes all steps within 5 minutes.	P	F
Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.		

**L-0010**  
**COMMUNICATIONS SAFETY PROCEDURES**

**CONDITIONS**

You are a mission radio operator at a search/DR base.

**OBJECTIVES**

Explain the safety exposures and mitigation factors involved in operating a mission radio system.

**TRAINING AND EVALUATION**

**Training Information Outline**

1. A Mission Radio Operator is required to maintain a safe environment as part of the operator tasks.
2. You should be able to demonstrate the following skills:
  - a) List at least 5 safety rules for lightning protection
    - 1) If you can hear thunder from lightning, you are close enough be hit by it. Seek safe shelter.
    - 2) Properly ground all equipment when installed.
    - 3) Disconnect antennas from radios when lightning is observed in the area.
    - 4) Disconnect radios/power supplies from ac outlets when lightning is observed in the area.
    - 5) If you are in a vehicle, do not remain in a high location that would make you a likely target for lightning (such as a hilltop or large open field).
    - 6) If you are on foot, seek shelter. Report to mission base, or any other unit, that you are leaving the air due to lightning. Move to a sturdy building or car. Do not take shelter in small sheds, under isolated trees, or in a convertible automobile.
    - 7) If on foot and no suitable shelter is available, find a low spot away from trees, fences and poles. Make sure the place you pick is not subject to flooding. If you are in the woods, take shelter under shorter trees.
  - b) Proper routing and securing of cables and wires
  - c) Locating antenna systems to minimize RF exposure and EMI
  - d) Explain a proper grounding system

**Additional Information**

Additional information on radio safety can be found in Chapter 7 of CAPR 100-1 Vol. 1. Additional lightning safety tips can be found at the National Lightning Safety Institute's home page at:

<http://www.electricnet.com/orgs/nlsi.htm>

**Evaluation Preparation**

**Setup:** None

**Brief Student:** Have the student recite the 5 safety rules for lightning protection. Have the student explain the proper routing and securing of wires and cables, how to properly locate an antenna system and ground the equipment.

### Evaluation:

<u>Performance measures</u>	<u>Results</u>	
1. List at least 5 safety rules for lightning protection	P	F
2. Explain the proper routing and secure of wires and cables	P	F
3. Explain how to properly locate antenna systems to maximize safety and minimize RF exposure and EMI	P	F
4. Explain how to properly ground communications equipment	P	F

Student must receive a pass on all performance measures to qualify in this task. If the individual fails any measure, show what was done wrong and how to do it correctly.

**SPECIALTY QUALIFICATION TRAINING RECORD (SQTR)****Mission Radio Operator**

NAME (Last, First, MI)

CAPID

DATE ISSUED

**Prerequisites**

Item	Date Completed
Qualified GES	
Complete Basic Communications User Training	

The above listed member has completed the required prerequisite training for the mission radio operator specialty and is authorized to serve in that specialty while supervised on training or actual missions.

\_\_\_\_\_  
UNIT/WING/REGION COMMANDER OR  
AUTHORIZED DESIGNEE'S SIGNATURE

\_\_\_\_\_  
DATE

**Familiarization and Preparatory Training**

No Additional Training Is Required

**Advanced Training**

Task	Evaluator's CAPID and Date Completed
Complete Task L-0001 Basic Communications Procedures for ES Operations	
Complete Task L-0002 Perform Radio Operating Procedures	
Complete Task L-0003 Employ appropriate radio frequencies and repeaters	
Complete Task L-0004 Message Handling Procedures	
Complete Task L-0005 Choose a good communications site	
Complete Task L-0006 Take steps to regain communications	
Complete Task L-0007 Conduct scheduled checks	
Complete Task L-0008 Send a position report	
Complete Task L-0009 Report a clue or Find	
Complete Task L-0010 Communications Safety Procedures	
Complete Task L-0101 Demonstrate the ability to keep a log	
Complete the appropriate portion of CAPT 117, <i>Emergency Services Continuing Education examinations</i>	

**Exercise Participation**

The above listed member satisfactorily participated as a mission radio operator trainee under my direct supervision on mission number \_\_\_\_\_.

\_\_\_\_\_  
QUALIFIED SUPERVISOR'S SIGNATURE

\_\_\_\_\_  
DATE

The above listed member satisfactorily participated as a mission radio operator trainee under my direct supervision on mission number \_\_\_\_\_.

\_\_\_\_\_  
QUALIFIED SUPERVISOR'S SIGNATURE

\_\_\_\_\_  
DATE

**Unit Certification and Recommendation**

The above listed member has completed the requirements for the mission radio operator specialty qualification and is authorized to serve in that specialty on training or actual missions.

\_\_\_\_\_  
UNIT/WING/REGION COMMANDER OR  
AUTHORIZED DESIGNEE'S SIGNATURE

\_\_\_\_\_  
DATE